

REMARKS

In the Office Action, the Examiner provisionally rejected claims 1-2 and 12 on the ground of nonstatutory double patenting over claims 1 and 20 of the copending Application No. 10/062,992 and over claims 1, 15, and 26 of copending Application No. 10/062,017. The Examiner also rejected claims 1-25 under 35 U.S.C. §103(a) as being unpatentable by the United States Patent 6,134,705 issued to Pedersen et al. ("Pedersen") in view of the United States Patent 6,925,088 to Moreaux ("Moreaux"). Applicants have not amended, added or canceled any claims. Therefore, claims 1-25 remain pending in this application.

I. Double Patenting Rejection

In the Office Action, the Examiner provisionally rejected claims 1-2 and 12 on the ground of nonstatutory double patenting over claim 1 and 20 of the copending Application No. 10/062,992 and over claims 1, 15, and 26 of copending Application No. 10/062,017. A Terminal Disclaimer is provided in accordance with the filing of this Office Action to cure all grounds of the nonstatutory double patenting rejection of claims 1-2 and 12.

II. Rejection of Claim 1 under §103(a)

In the Office Action, the Examiner rejected claim 1 under §103(a) as being unpatentable by Pedersen in view of Moreaux. Claim 1 recites a data storage structure that stores several combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. Each sub-network is stored based on a set of indices derived from the set of output functions

performed by the sub-network. The set of indices is used to retrieve the sub-network from the data storage structure.

In the Office Action, the Examiner has agreed that Pedersen does not specify sub-networks that include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. *See*, Office Action, page 4. However, the Examiner rejected claim 1 stating that it would have been obvious to one ordinarily skilled in the art to have modified Pedersen by the teaching of Moreaux. Applicants respectfully disagree and traverse the rejection for the following four reasons.

First, Applicants respectfully submit that the Examiner's rejection has relied on impermissible piecemeal and hindsight combination of features from different references. "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." *See*, MPEP 2143.01. The Examiner has not identified any suggestions or motivations, explicit or implicit, for establishing the combination of the Moreaux and Pedersen references.

Moreaux is in the field of aircraft data transmission systems and the cited entities are star distributors (entities labeled 301) and peripheral devices (entities 302). *See*, Moreaux, column 1, line 13, and column 3, lines 23-27. Pedersen is in the field of incremental compilation of changed electronic designs, delineating the range of influence of a design change in an unsynthesized netlist. *See*, Pedersen, column 2, lines 25-29. Therefore, there is no explicit or implicit teaching, suggestion, or motivation within the references themselves or for one of ordinary skill in the art to suggest the combination of Pedersen and Moreaux.

Additionally, there is no suggestion or motivation to combine Moreaux with Pedersen, because the combined references are from completely different fields of art. The Moreaux reference is neither in the Applicants' nor Pedersen's field of endeavor nor is Moreaux pertinent to either Applicants' or Pedersen's particular problem. *See In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); *See also*, MPEP 2141.01(a).

Second, Applicants respectfully submit that Pedersen, Moreaux, or their piecemeal hindsight combination does not disclose, teach, or even suggest sub-networks that include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. In the Office Action, the Examiner has cited characters 301 and 302 in Figure 3 of Moreaux as a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. *See*, Office Action, p.4. Specifically, the Examiner points to "the three elements 302s at the most right side in the Figure, as first circuits, receives direct or indirect input from the elements 301, the second circuits. Also note the elements 302s and 301s are all outside of the central subnet, the element 320 at the center in the Figure." *See*, Office Action, p.12. This interpretation of Figure 3 is inconsistent with that of the Moreaux specification.

A sub-network and its circuit elements within Moreaux consist of star distributors (entities labeled 301) and peripheral units (entities labeled 302). Yet, Moreaux does not disclose the peripheral unit circuit elements having outputs outside the sub-network. "The at least one star distributor in turn is so connected or wired that each subnet forms a cross distributor for the peripheral units that are connected to the subnet." *See*, Moreaux, column 1, lines 61-64; *See also*, Moreaux, column 2, lines 65-67. Peripheral units are dependent upon the star distributors for communication and output outside the sub-network.

This is further evident in Moreaux Figures 2 and 3 that depict peripheral units as exclusively coupled to star distributors for communication among sub-networks. "FIG. 3 illustrates an example structure of a subnet n. The subnet n comprises four substantially identical star distributors 301 to which are connected one or several peripheral units or devices 302...." *See*, Moreaux, column 3, lines 23-26. Figure 2 also depicts peripheral units as extraneous units with respect to the communication and output of the sub-network. Therefore, Applicants respectfully submit that Moreaux does not disclose a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Third, Applicants respectfully submit that the cited reference teaches away from the possibility that the second circuit may have a second output outside the sub-network. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference...would be led in a direction divergent from the path that was taken by the applicant." *In re Haruna*, 249 F.3d 1327, 1335, 58USPQ2d 1517 (Fed. Cir. 2001).

The circuit elements of the Moreaux sub-network are the star distributors and the peripheral units. As shown above, the peripheral units, in and of themselves, lack the means to output or communicate outside the sub-network. The peripheral units are dependent upon the star distributors to form a cross distributor in order for the peripheral units to output. *See*, Moreaux, column 12, lines 44-65, which discloses that all addressing and routing operations are performed by the star distributor services. Moreaux Figure 6 shows the peripheral units as depending on the star distributor services 501 and 502 in order to output or communicate outside the sub-network. "On the basis of this table and with the aid of the destination address, the service 502 ascertains the outputs required for passing or transmitting the frames." *See*, Moreaux, column 12, lines 55-58; *See also*, Moreaux, column 4, lines 56-62.

Applicants respectfully submit that the dependency of the peripheral units on the star distributors for their output outside the sub-network teach away from the invention of claim 1. As mentioned above, claim 1 recites a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Fourth, Applicants respectfully submit that Pedersen, Moreaux, or their piecemeal hindsight combination does not disclose, teach, or even suggest a data storage structure that stores each sub-network based on a set of indices derived from the set of output functions performed by the sub-network. The sub-netlist disclosed by Pedersen is not indexed. Rather, the Pedersen sub-netlist is a compilation of a recursive traversal of a netlist from which flagged “modified” nodes are identified and added to the sub-netlist. *See*, Pedersen, column 12, lines 11-59. Furthermore, these sub-netlists are generated and stored irrespective of any output function; the Pedersen disclosure omits and does not contain any implicit references or suggestions that an output function be used for the purpose of storing the sub-netlist.

In the Office Action, the Examiner cited Figures 7E-7F; column 1, lines 37-44; column 11, lines 40-60; column 12, lines 10-15 and lines 43-45; and column 16, lines 21-39 of Pedersen for specifying the above-mentioned limitations. Applicants respectfully submit that such limitations are wholly absent from any of the cited figures and paragraphs and that the limitations are not disclosed elsewhere within the Pedersen and/or Moreaux patents.

Specifically, Figure 7E-7F and column 16, lines 21-39 of Pedersen specify how some hard registers and soft registers can be distinguished. Column 1, lines 37-44 is a part of the cross reference section citing a graphics editor and the Examiner has not specified what in this paragraph is related to limitations of claim 1. The other paragraphs cited by the Examiner specify the following:

The sub-netlist contains the logic nodes that are affected by the design changes identified at step 353 (both directly and indirectly modified nodes). The compiler performs step 355 via a method which is the subject of this invention. Next, the compiler synthesizes the changed portion of the changed design at a step 357. To save resources, it typically does not synthesize the unchanged portion of the design.

Now the newly synthesized sub-netlist may replace a corresponding portion of the original synthesized netlist. The original and changed synthesized netlists may optionally be compared against one another by netlist differencing. See step 359. This optional step confirms which nodes of the synthesized netlist have actually changed. Only those gates need be considered in subsequent incremental compilation procedures. The process is now complete at 365 and process control is directed to step 320 of process 300 (FIG. 3A). That is, the compiler now maps, partitions, and fits the changed gates of the synthesized netlist into logic cells while preserving as much of the original fitting as possible.

See, Pedersen, column 11, lines 40-60

In overview, process 355 involves first identifying "external nodes" which are input/output pins and certain registers (defined below) common to both the synthesized original design and the unsynthesized changed design. Then, the compiler recurses forward from the new nodes to external nodes and, thereafter, recurses backward from those external nodes to the next external nodes in the path.

See, Pedersen, column 12, lines 10-15

After the modified external gate or gates have been identified by forward recursion from the current new gate under consideration, the compiler must determine whether there are any new gates remaining to be considered.

See, Pedersen, column 12, lines 43-45

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Applicants respectfully submit that, as it is clearly obvious from the above paragraphs, none of the figures and paragraphs cited by the Examiner disclose, teach, or even suggest a data storage structure that stores each sub-network based on a set of indices derived from the set of output functions performed by the sub-network

and that a convincing line of reasoning has not been presented as to why the Examiner has found the claimed invention to have been obvious in light of the teachings of the references.

In view of the foregoing remarks, Applicants respectfully submit that the cited references, neither alone nor through their piecemeal, hindsight combination, render claim 1 invalid. Accordingly, Applicants respectfully request reconsideration and withdrawal of the 103(a) rejection of claim 1.

III. Rejection of Claims 2-11 and 25 under §103(a)

In the Office Action, the Examiner rejected claims 2-11 and 25 under §103(a) as being unpatentable by Pedersen in view of Moreaux. Claims 3-11 and 25 are directly or indirectly dependent on claim 2. Claim 2 recites a data storage structure that stores several combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. The data storage structure stores each sub-network based on a parameter derived from the set of output functions of the sub-network. The parameter is used to retrieve the sub-network from the data storage structure.

In the Office Action, the Examiner has agreed that Pedersen does not specify sub-networks that include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. *See*, Office Action, page 5. However, the Examiner rejected claim 2 stating that it would have been obvious to one ordinarily skilled in the art to

have modified Pedersen by the teaching of Moreaux. Applicants respectfully disagree and traverse the rejection for the following four reasons.

First, Applicants respectfully submit that the Examiner's rejection has relied on impermissible piecemeal and hindsight combination of features from different references. "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." *See*, MPEP 2143.01. The Examiner has not identified any suggestions or motivations, explicit or implicit, for establishing the combination of the Moreaux and Pedersen references.

Moreaux is in the field of aircraft data transmission systems and the cited entities are star distributors (entities labeled 301) and peripheral devices (entities 302). *See*, Moreaux, column 1, line 13, and column 3, lines 23-27. Pedersen is in the field of incremental compilation of changed electronic designs, delineating the range of influence of a design change in an unsynthesized netlist. *See*, Pedersen, column 2, lines 25-29. Therefore, there is no explicit or implicit teaching, suggestion, or motivation within the references themselves or for one of ordinary skill in the art to suggest the combination of Pedersen and Moreaux.

Additionally, there is no suggestion or motivation to combine Moreaux with Pedersen, because the combined references are from completely different fields of art. The Moreaux reference is neither in the Applicants' nor Pedersen's field of endeavor nor is Moreaux pertinent to either Applicants' or Pedersen's particular problem. *See In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); *See also*, MPEP 2141.01(a).

Second, Applicants respectfully submit that Pedersen, Moreaux, or their piecemeal hindsight combination does not disclose, teach, or even suggest sub-networks that include a first

circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. In the Office Action, the Examiner has cited characters 301 and 302 in Figure 3 of Moreaux as a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. *See*, Office Action, p.5. Specifically, the Examiner points to “the three elements 302s at the most right side in the Figure, as first circuits, receives direct or indirect input from the elements 301, the second circuits. Also note the elements 302s and 301s are all outside of the central subnet, the element 320 at the center in the Figure.” *See*, Office Action, p.12. This interpretation of Figure 3 is inconsistent with that of the Moreaux specification.

A sub-network and its circuit elements within Moreaux consist of star distributors (entities labeled 301) and peripheral units (entities labeled 302). Yet, Moreaux does not disclose the peripheral unit circuit elements having outputs outside the sub-network. “The at least one star distributor in turn is so connected or wired that each subnet forms a cross distributor for the peripheral units that are connected to the subnet.” *See*, Moreaux, column 1, lines 61-64; *See also*, Moreaux, column 2, lines 65-67. Peripheral units are dependent upon the star distributors for communication and output outside the sub-network.

This is further evident in Moreaux Figures 2 and 3 that depict peripheral units as exclusively coupled to star distributors for communication among sub-networks. “FIG. 3 illustrates an example structure of a subnet n. The subnet n comprises four substantially identical star distributors 301 to which are connected one or several peripheral units or devices 302....” *See*, Moreaux, column 3, lines 23-26. Figure 2 also depicts peripheral units as extraneous units with respect to the communication and output of the sub-network. Therefore, Applicants respectfully submit that Moreaux does not disclose a second circuit that has a second output

outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Third, Applicants respectfully submit that Moreaux teaches away from the possibility that the second circuit may have a second output outside the sub-network. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference...would be led in a direction divergent from the path that was taken by the applicant.” *In re Haruna*, 249 F.3d 1327, 1335, 58USPQ2d 1517 (Fed. Cir. 2001).

The circuit elements of the Moreaux sub-network are the star distributors and the peripheral units. As shown above, the peripheral units, in and of themselves, lack the means to output or communicate outside the sub-network. The peripheral units are dependent upon the star distributors to form a cross distributor in order for the peripheral units to output. *See*, Moreaux, column 12, lines 44-65, which discloses that all addressing and routing operations are performed by the star distributor services. Moreaux Figure 6 shows the peripheral units as depending on the star distributor services 501 and 502 in order to output or communicate outside the sub-network. “On the basis of this table and with the aid of the destination address, the service 502 ascertains the outputs required for passing or transmitting the frames.” *See*, Moreaux, column 12, lines 55-58; *See also*, Moreaux, column 4, lines 56-62.

Applicants respectfully submit that the dependency of the peripheral units on the star distributors for their output outside the sub-network teach away from the invention of claim 2. As mentioned above, claim 2 recites a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Fourth, Applicants respectfully submit that Pedersen, Moreaux, or their hindsight piecemeal combination does not disclose, teach, or even suggest a data storage structure that

stores each sub-network based on a parameter that is derived from a set of output functions of the sub-network. The Pedersen sub-netlist is a compilation of a recursive traversal of a netlist from which flagged "modified" nodes are identified and added to the sub-netlist. *See*, Pedersen, column 12, lines 11-59. Therefore, these sub-netlists are generated and stored irrespective of any output function; the Pedersen disclosure omits and does not contain any implicit references or suggestions that an output function be used for the purpose of storing the sub-netlist.

In the Office Action, the Examiner cited Figures 7E-7F; column 1, lines 37-44; column 11, lines 40-60; column 12, lines 10-15 and lines 43-45; and column 16, lines 21-39 of Pedersen for specifying the above-mentioned limitations. Applicants respectfully submit that such limitations are wholly absent from any of the cited figures and paragraphs and that the limitations are not disclosed elsewhere within the Pedersen and/or Moreaux patents.

Specifically, Figure 7E-7F and column 16, lines 21-39 of Pedersen specify how some hard registers and soft registers can be distinguished. Column 1, lines 37-44 is a part of the cross reference section citing a graphics editor and the Examiner has not specified what in this paragraph is related to limitations of claim 1. The other paragraphs cited by the Examiner specify the following:

The sub-netlist contains the logic nodes that are affected by the design changes identified at step 353 (both directly and indirectly modified nodes). The compiler performs step 355 via a method which is the subject of this invention. Next, the compiler synthesizes the changed portion of the changed design at a step 357. To save resources, it typically does not synthesize the unchanged portion of the design.

Now the newly synthesized sub-netlist may replace a corresponding portion of the original synthesized netlist. The original and changed synthesized netlists may optionally be compared against one another by netlist differencing. *See* step 359. This optional step confirms which nodes of the synthesized netlist have actually changed. Only those gates need be considered in subsequent incremental compilation procedures. The process is now complete at 365 and process control is directed to step 320 of process 300 (FIG. 3A). That is, the compiler now maps, partitions, and fits the changed gates of the synthesized netlist into logic cells while preserving as much of the original fitting as possible.

See, Pedersen, column 11, lines 40-60

In overview, process 355 involves first identifying "external nodes" which are input/output pins and certain registers (defined below) common to both the synthesized original design and the unsynthesized changed design. Then, the compiler recurses forward from the new nodes to external nodes and, thereafter, recurses backward from those external nodes to the next external nodes in the path.

See, Pedersen, column 12, lines 10-15

After the modified external gate or gates have been identified by forward recursion from the current new gate under consideration, the compiler must determine whether there are any new gates remaining to be considered.

See, Pedersen, column 12, lines 43-45

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Applicants respectfully submit that, as it is clearly obvious from the above paragraphs, none of the figures and paragraphs cited by the Examiner disclose, teach, or even suggest a data storage structure that stores each sub-network based on a parameter derived from the set of output functions of the sub-network and that a convincing line of reasoning has not been presented as to why the Examiner has found the claimed invention to have been obvious in light of the teachings of the references.

In view of the foregoing remarks, Applicants respectfully submit that the cited references, neither alone nor through their piecemeal, hindsight combination, render claim 2 invalid. Given that claims 3-11 and 25 are dependent on claim 2, Applicants respectfully submit that these claims are allowable over the cited reference for at least the same reasons that were provided above for claim 2. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the 103(a) rejection of claims 2-11 and 25.

IV. Rejection of Claims 12-24 under §103(a)

In the Office Action, the Examiner rejected claims 12-24 under §103(a) as being unpatentable by Pedersen in view of Moreaux. Claims 13-24 are directly or indirectly dependent on claim 12. Claim 12 recites a sub-network record management system that includes a data storage structure that stores a plurality of combinational-logic sub-networks. Each sub-network performs a set of output functions and includes a set of circuit elements. At least some of the sub-networks include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. The first circuit receives a direct or indirect input from the second circuit. The data storage structure stores each sub-network based on a parameter derived from the set of output functions of the sub-network. The parameter is used to retrieve the sub-network from the data storage structure. The sub-network record management system also includes a data access manager that identifies and retrieves sub-networks from the data storage structure.

In the Office Action, the Examiner has agreed that Pedersen does not specify sub-networks that include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. *See*, Office Action, page 9. However, the Examiner rejected claim 12 stating that it would have been obvious to one ordinarily skilled in the art to have modified Pedersen by the teaching of Moreaux. Applicants respectfully disagree and traverse the rejection for the following five reasons.

First, Applicants respectfully submit that the Examiner's rejection has relied on impermissible piecemeal and hindsight combination of features from different references. "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do

so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” *See*, MPEP 2143.01. The Examiner has not identified any suggestions or motivations, explicit or implicit, for establishing the combination of the Moreaux and Pedersen references.

Moreaux is in the field of aircraft data transmission systems and the cited entities are star distributors (entities labeled 301) and peripheral devices (entities 302). *See*, Moreaux, column 1, line 13, and column 3, lines 23-27. Pedersen is in the field of incremental compilation of changed electronic designs, delineating the range of influence of a design change in an unsynthesized netlist. *See*, Pedersen, column 2, lines 25-29. Therefore, there is no explicit or implicit teaching, suggestion, or motivation within the references themselves or for one of ordinary skill in the art to suggest the combination of Pedersen and Moreaux.

Additionally, there is no suggestion or motivation to combine Moreaux with Pedersen, because the combined references are from completely different fields of art. The Moreaux reference is neither in the Applicants’ nor Pedersen’s field of endeavor nor is Moreaux pertinent to either Applicants’ or Pedersen’s particular problem. *See In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); *See also*, MPEP 2141.01(a).

Second, Applicants respectfully submit that Pedersen, Moreaux, or their piecemeal hindsight combination does not disclose, teach, or even suggest sub-networks that include a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit. In the Office Action, the Examiner has cited characters 301 and 302 in Figure 3 of Moreaux as a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network. *See*, Office Action, p.9. Specifically, the Examiner points to “the three elements 302s at the most right side in the Figure, as first circuits,

receives direct or indirect input from the elements 301, the second circuits. Also note the elements 302s and 301s are all outside of the central subnet, the element 320 at the center in the Figure.” *See*, Office Action, p.12. This interpretation of Figure 3 is inconsistent with that of the Moreaux specification.

A sub-network and its circuit elements within Moreaux consist of star distributors (entities labeled 301) and peripheral units (entities labeled 302). Yet, Moreaux does not disclose the peripheral unit circuit elements having outputs outside the sub-network. “The at least one star distributor in turn is so connected or wired that each subnet forms a cross distributor for the peripheral units that are connected to the subnet.” *See*, Moreaux, column 1, lines 61-64; *See also*, Moreaux, column 2, lines 65-67. Peripheral units are dependent upon the star distributors for communication and output outside the sub-network.

This is further evident in Moreaux Figures 2 and 3 that depict peripheral units as exclusively coupled to star distributors for communication among sub-networks. “FIG. 3 illustrates an example structure of a subnet n. The subnet n comprises four substantially identical star distributors 301 to which are connected one or several peripheral units or devices 302....” *See*, Moreaux, column 3, lines 23-26. Figure 2 also depicts peripheral units as extraneous units with respect to the communication and output of the sub-network. Therefore, Applicants respectfully submit that Moreaux does not disclose a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Third, Applicants respectfully submit that Moreaux teaches away from the possibility that the second circuit may have a second output outside the sub-network. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference...would be led in a

direction divergent from the path that was taken by the applicant." *In re Haruna*, 249 F.3d 1327, 1335, 58USPQ2d 1517 (Fed. Cir. 2001).

The circuit elements of the Moreaux sub-network are the star distributors and the peripheral units. As shown above, the peripheral units, in and of themselves, lack the means to output or communicate outside the sub-network. The peripheral units are dependent upon the star distributors to form a cross distributor in order for the peripheral units to output. *See*, Moreaux, column 12, lines 44-65, which discloses that all addressing and routing operations are performed by the star distributor services. Moreaux Figure 6 shows the peripheral units as depending on the star distributor services 501 and 502 in order to output or communicate outside the sub-network. "On the basis of this table and with the aid of the destination address, the service 502 ascertains the outputs required for passing or transmitting the frames." *See*, Moreaux, column 12, lines 55-58; *See also*, Moreaux, column 4, lines 56-62.

Applicants respectfully submit that the dependency of the peripheral units on the star distributors for their output outside the sub-network teach away from the invention of claim 12. As mentioned above, claim 12 recites a first circuit that has a first output outside the sub-network and a second circuit that has a second output outside the sub-network, where the first circuit receives a direct or indirect input from the second circuit.

Fourth, Applicants respectfully submit that Pedersen, Moreaux, or their piecemeal hindsight combination does not disclose, teach, or even suggest a sub-network record management system that includes a data storage structure that stores each sub-network based on a parameter that is derived from the set of output functions of the sub-network. In the Office Action, the Examiner cited Figures 7E-7F; column 1, lines 37-44; column 11, lines 40-60; column 12, lines 10-15 and lines 43-45; and column 16, lines 21-39 of Pedersen for specifying such a limitation. Applicants respectfully submit that neither in any of the cited figures and

paragraphs nor anywhere else in Pedersen and/or Moreaux is such a data storage structure specified.

Specifically, Figure 7E-7F and column 16, lines 21-39 of Pedersen specify how some hard registers and soft registers can be distinguished. Column 1, lines 37-44 is a part of the cross reference section citing a graphics editor and the Examiner has not specified what in this paragraph is related to limitations of claim 1. The other paragraphs cited by the Examiner specify the following:

The sub-netlist contains the logic nodes that are affected by the design changes identified at step 353 (both directly and indirectly modified nodes). The compiler performs step 355 via a method which is the subject of this invention. Next, the compiler synthesizes the changed portion of the changed design at a step 357. To save resources, it typically does not synthesize the unchanged portion of the design.

Now the newly synthesized sub-netlist may replace a corresponding portion of the original synthesized netlist. The original and changed synthesized netlists may optionally be compared against one another by netlist differencing. See step 359. This optional step confirms which nodes of the synthesized netlist have actually changed. Only those gates need be considered in subsequent incremental compilation procedures. The process is now complete at 365 and process control is directed to step 320 of process 300 (FIG. 3A). That is, the compiler now maps, partitions, and fits the changed gates of the synthesized netlist into logic cells while preserving as much of the original fitting as possible.

See, Pedersen, column 11, lines 40-60

In overview, process 355 involves first identifying "external nodes" which are input/output pins and certain registers (defined below) common to both the synthesized original design and the unsynthesized changed design. Then, the compiler recurses forward from the new nodes to external nodes and, thereafter, recurses backward from those external nodes to the next external nodes in the path.

See, Pedersen, column 12, lines 10-15

After the modified external gate or gates have been identified by forward recursion from the current new gate under consideration, the compiler must determine whether there are any new gates remaining to be considered.

See, Pedersen, column 12, lines 43-45

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the

Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Applicants respectfully submit that, as it is clearly obvious from the above paragraphs, none of the figures and paragraphs cited by the Examiner disclose, teach, or even suggest a data storage structure that stores each sub-network based on a parameter derived from the set of output functions of the sub-network.

Fifth, Applicants respectfully submit that Pedersen, Moreaux, or their combination does not disclose, teach, or even suggest a sub-network record management system that has a data access manager that identifies and retrieves sub-networks from a data storage structure. Specifically, in the Office Action, the Examiner cited column 10, lines 40-50 and item 314 in Figure 3A of Pedersen for specifying such a system. Applicants respectfully submit that Figure 3A of Pedersen is a process flow diagram depicting how the incremental recompile methodologies of the invention may be incorporated into a standard compilation/recompilation design flow. *See*, Pedersen, column 5, lines 23-27. Furthermore, item 314 in Figure 3A of Pedersen specifies: "Receive An Unsynchronized Netlist Of The Changed Design". Applicants respectfully submit that the entity that performs item 314 is process 300 which is the process showing how the incremental recompilation method of Pedersen can be incorporated into a standard compilation/recompilation design flow and is not a sub-network record management system that has a data access manager that identifies and retrieves sub-networks from a data storage structure.

In view of the foregoing remarks, Applicants respectfully submit that the cited references, neither alone nor through their piecemeal, hindsight combination, render claim 12 invalid. Given that claims 13-24 are dependent on claim 12, Applicants respectfully submit that these claims are allowable over the cited reference for at least the same reasons that were

provided above for claim 12. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the 103(a) rejection of claims 12-24.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-25, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

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